John Buchan Middle School

Science Test Revisiom

6F How We See Things

32 min

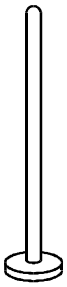
30 marks

Name

Level 3

1. Shadows

(a) One sunny day, some children use a rounders post to make shadows in their playground.



rounders post

When light shines on the rounders post, a shadow forms.

Where does the light come from?

.....

1 mark

(b) The rounders post makes a dark shadow.

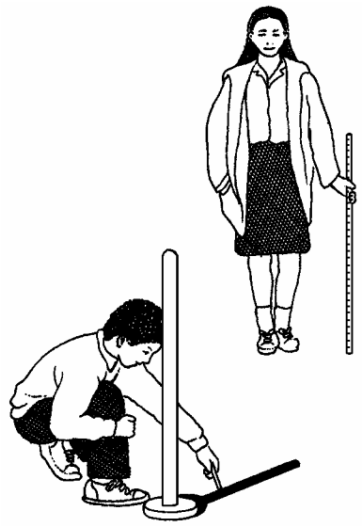
Tick **ONE** box to complete the sentence below.

The rounders post makes a **dark** shadow because it is...

opaque.	☐	smooth.	☐
solid.	☐	transparent.	☐
tall.	☐	heavy.	☐

1 mark

(c) The children draw round the shadow of the rounders post every half hour from 9:30 until 12 noon.



They measure the length of each shadow and record their results in this table:

Time (am)	Length of shadow (cm)
9:30	146
10:00	130
10:30	116
11:00	109
11:30	106
12:00	103

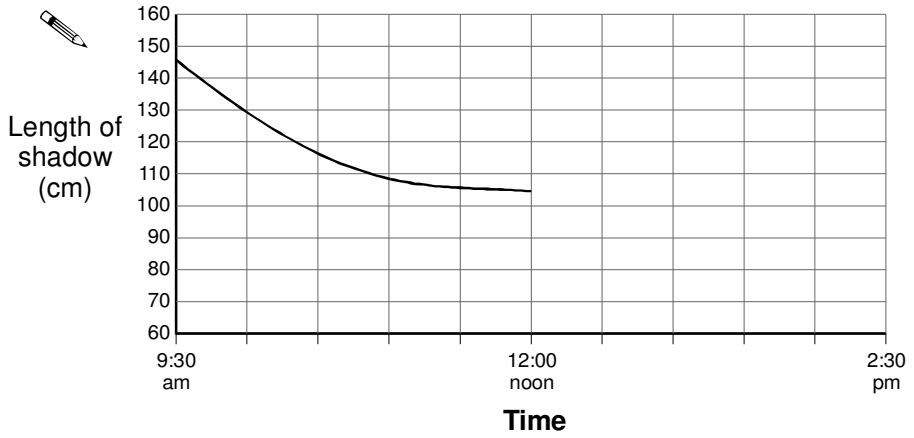
What happened to the length of the shadow during the morning?

.....

1 mark

(d) The children make a line graph to show the results from the morning.

Continue the line on the graph to show how the length of the shadow would change between 12 noon and 2:30pm.



1 mark

2. Lamp

(a) At night, Ben switches on the lamp in his room.

There is a shadow of the chair on the floor.

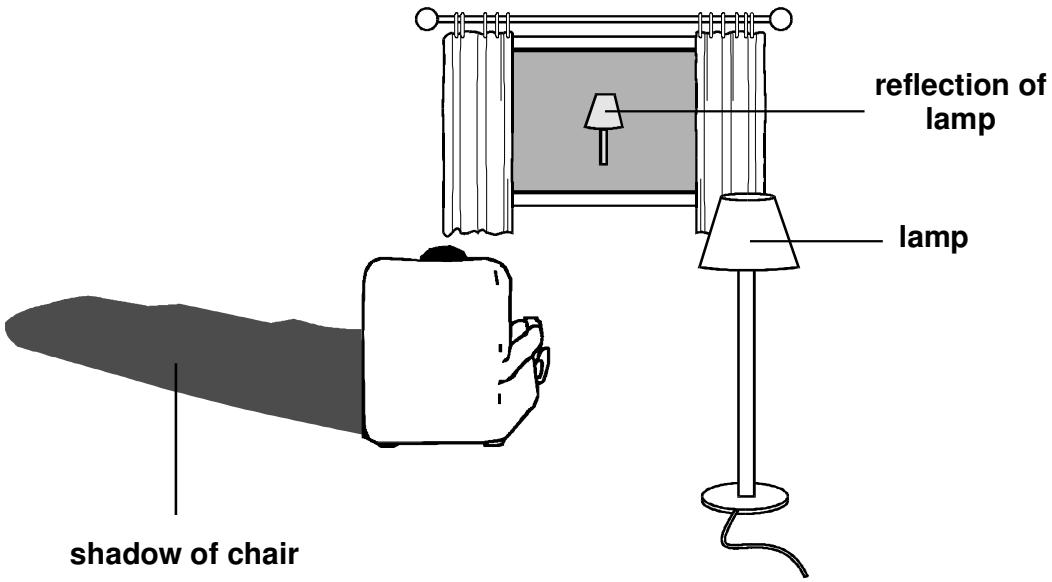
Explain how the shadow is formed from the light of the lamp.

.....

.....

1 mark

(b) Ben looks at the window, and sees a reflection of the lamp.



Why is there a reflection of the lamp in the window?

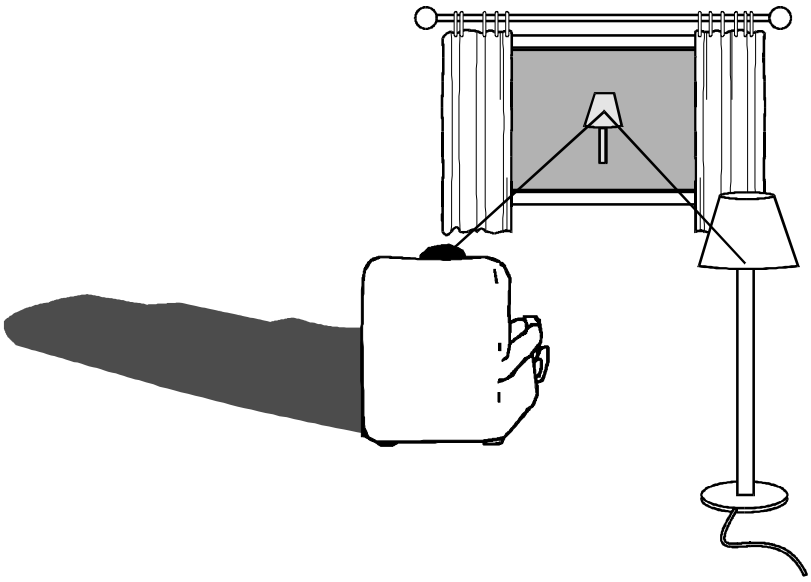
Tick **ONE** box.

There is a reflection of the lamp in the window because the window is . . .

shiny	☐	hard	☐
strong	☐	solid	☐

1 mark

(c) Draw **TWO** arrowheads on the lines in the picture below to show how light travels to let Ben see the reflection of the lamp.

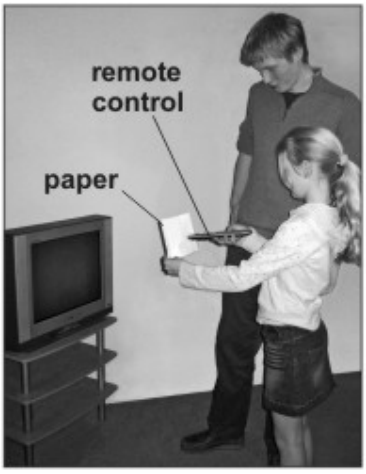


1 mark

Level 4

3. Remote control

(a) Ruth wants to find out how well the remote control turns on her TV when different materials are put in front of it.

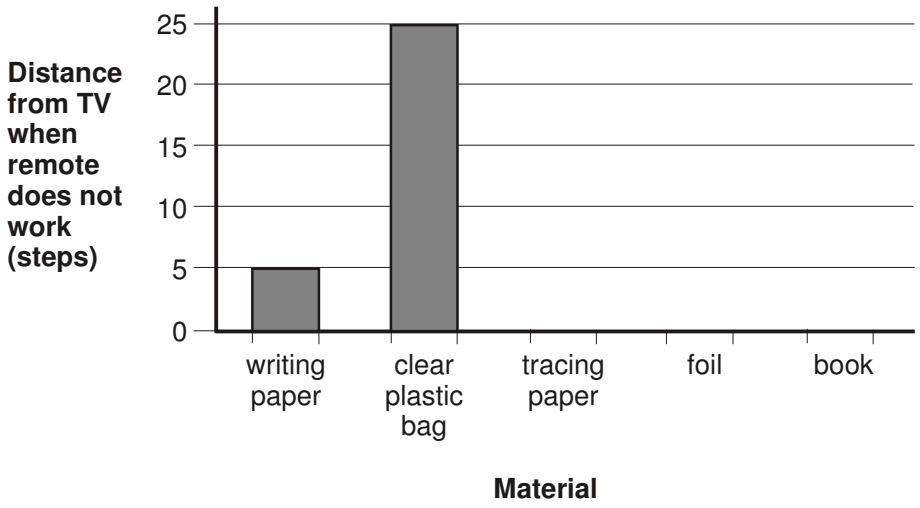


Ruth holds writing paper in front of the remote control. The TV still turns on.

Ruth repeats the test with different materials. The table below shows her results.

Material	Distance from TV when remote does not work (steps)
writing paper	5
clear plastic bag	25
tracing paper	8
foil	0
book	0

Complete the graph to show the results for the tracing paper.



1 mark

(a) Ruth's brother says she should not test the book as it makes the test unfair.

Why does the book make her test unfair?

.....

1 mark

(c) Ruth's brother repeats the investigation to check the results. He takes fewer steps back for each material before the TV does not turn on.

Tick **ONE** box to explain why Ruth's brother takes fewer steps back before the TV does not turn on.

He presses the remote control harder	☐	he uses smaller pieces of each material	☐
his steps are bigger	☐	the batteries in the remote control are newer	☐

1 mark

(d) Ruth could improve her investigation by getting more accurate results.

Describe how Ruth could get more accurate results.

.....

1 mark

(e) Ruth sees a pattern in her results. She states 'My results suggest that the remote control uses light to turn on the TV'.

Describe the evidence in Ruth's table of results that supports her statement.

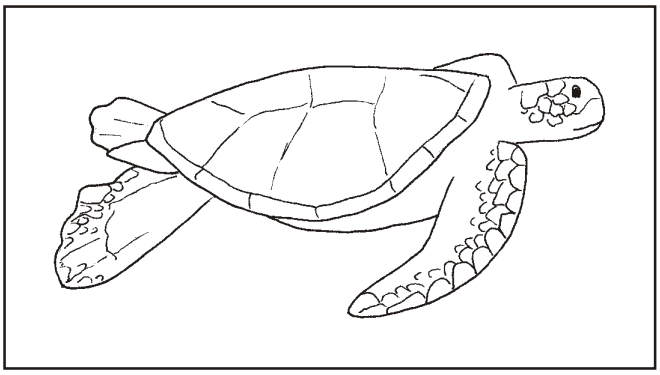
.....

.....

1 mark

4. Sea turtles

(a) Turtles live in the sea. They lay their eggs on sandy beaches.



Sea turtle

Tick **ONE** box to show which life process laying eggs is part of.

reproduction	☐	growth	☐
nutrition	☐	movement	☐

1 mark

(b) Baby turtles hatch from the eggs at night to avoid being eaten by predators.

How could hatching at night help baby turtles to avoid predators?

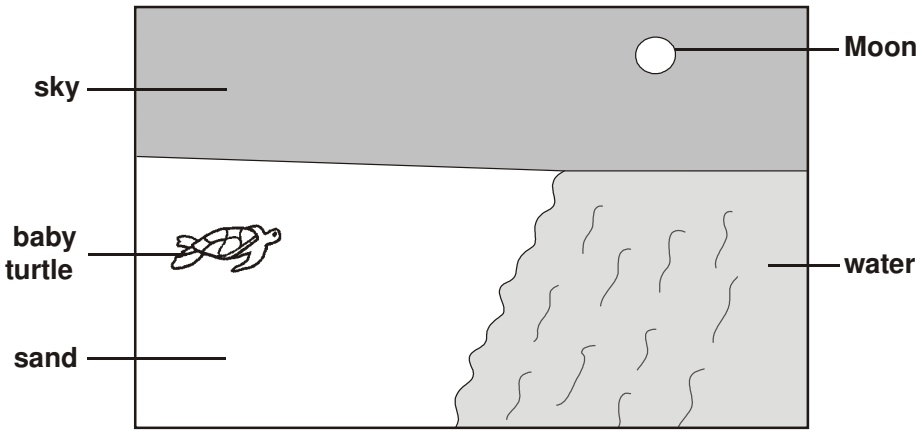
.....

.....

1 mark

(c) After the baby turtles hatch they go towards the sea. They know which way to go because they can see moonlight reflecting on the water.

Draw **TWO** arrows on the diagram below to show the **direction light travels** for the turtle to see the moonlight reflection on the water.



2 marks

(d) Light sources in nearby towns can confuse baby turtles.
They go in the wrong direction towards the town.

If they do not find the sea, the baby turtles may die.

What could people do at night to help the baby turtles to find the sea?

Tick **TWO** boxes.

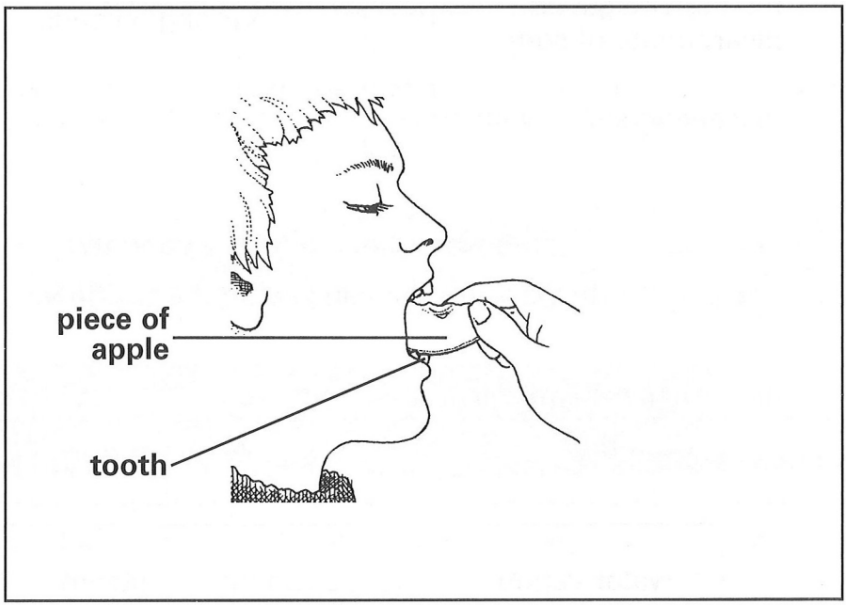
turn off street lights in towns	☐	turn off lights on ships	☐
stop cars driving near the beach	☐	open curtains	☐

1 mark

5. At the dentist

(a) When Jon bites a piece of apple, there is a force from Jon's teeth on the apple.

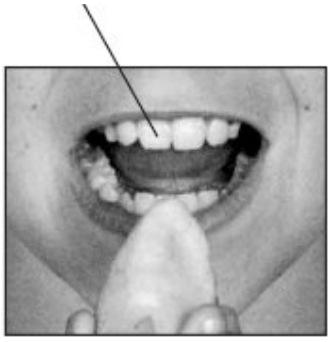
(i) Draw **ONE** arrow on the picture below to show the direction of the force from Jon's **bottom** teeth when he bites the apple.



1 mark

(ii) Label the main type of tooth Jon uses to bite the apple.

.....



(b) Jon visits the dentist regularly to help stop tooth decay.

Describe **ONE other** way Jon can help stop tooth decay.

.....

1 mark

(c) Jon looks around the dentist's surgery.
He can see the following objects.

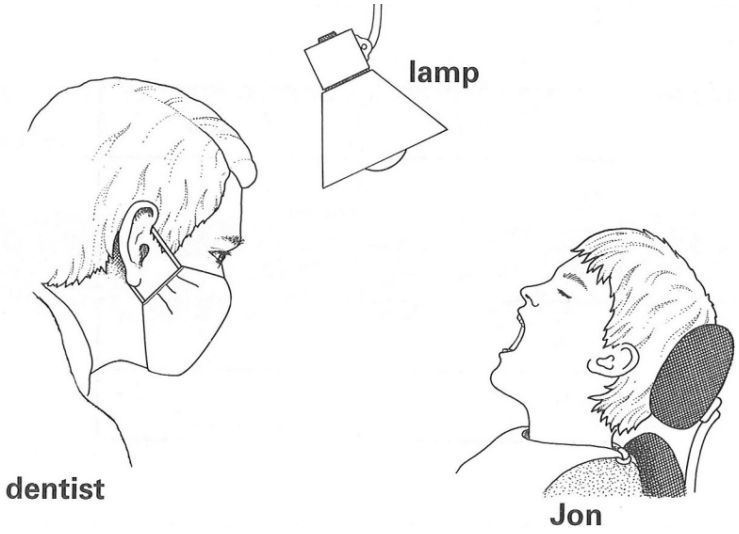
Tick **ONE** box to show which object light passes through best.

mirror	☐	glass	☐
pencil	☐	coat	☐

1 mark

(d) The dentist uses a lamp to see Jon's teeth clearly.

Draw **TWO** arrows on the diagram below to show the direction light travels for the dentist to see Jon's teeth.



2 marks

Level 5

6. The Earth and light

(a) Kate and Ashur are finding out about the Earth, Sun and Moon.

They decide to investigate how shadows change at different times of the day.
Kate measures the length of Ashur's shadow.

They repeat their test at two other times of the day.

Draw **THREE** lines to match each time of day to the correct length of shadow.

Time of day	Length of shadow
11am	280cm
12 noon	110cm
5pm	70cm

(b) Tick **ONE** box to show why shadows change length during the day.

The Sun orbits the Earth.	☐	The Earth orbits the Sun.	☐
The Sun goes up in the day and down at night.	☐	The Earth spins on its axis.	☐

1 mark

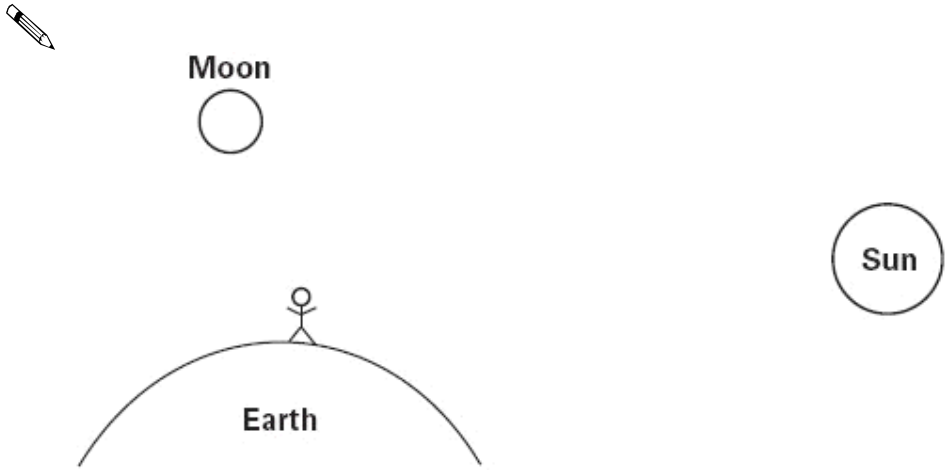
(c) The Moon does not give out light of its own. It reflects light from the Sun.

Tick **ONE** box to show which sentence below is evidence that the Moon does not give out its own light.

The moon is a sphere but appears to change shape during the month.	☐
The Moon is nearer to the Earth than the Sun.	☐
The Moon cannot be seen on cloudy days.	☐
The position of the Moon in the sky changes.	☐

1 mark

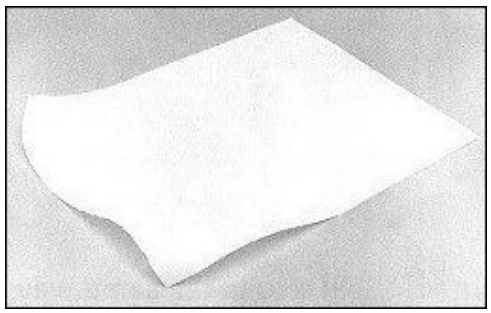
(d) Draw **TWO** arrows on the diagram below to show the direction the light travels so that a person on the Earth can see the Moon.



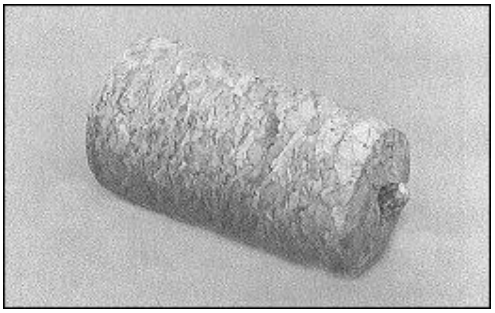
2 marks

7. Light

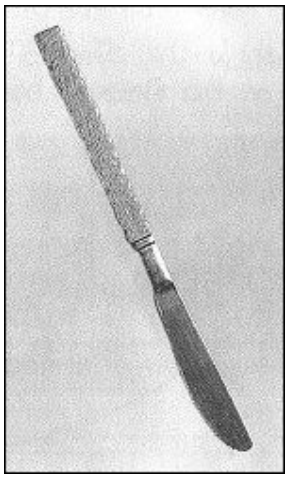
(a) Ian shines a torch onto some objects to see what happens to the light.



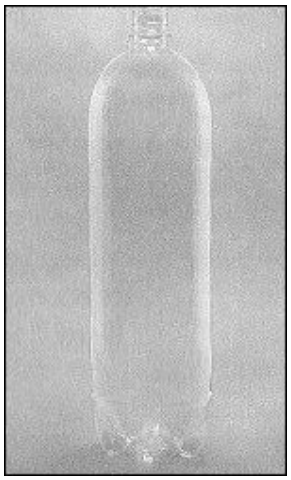
tracing paper



bottle cork



metal knife



clear plastic bottle

Write the name of **ONE** object to complete each of these sentences.

Only use the name of an object once.

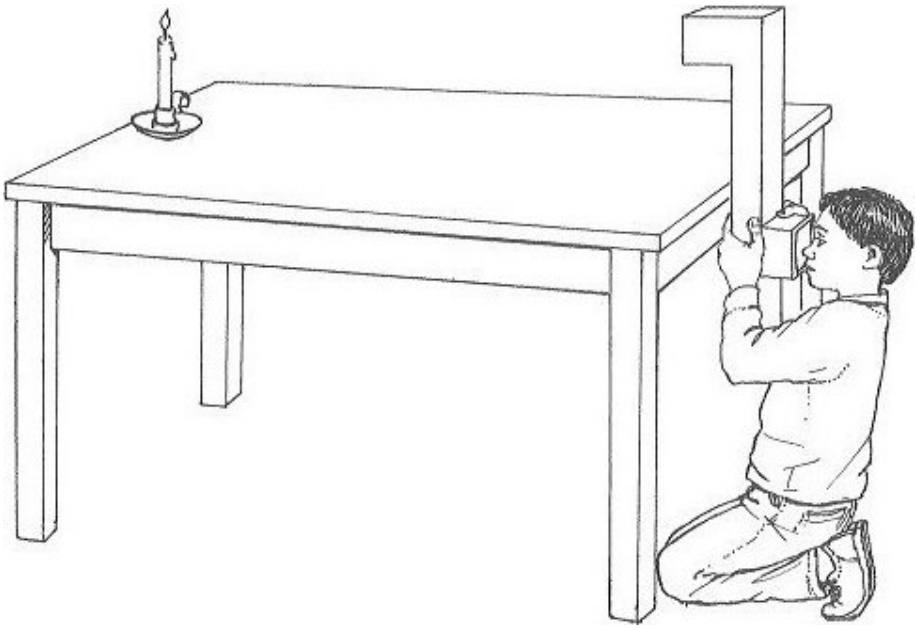
(i) The light went through the ..... .

(ii) The light made the ..... look shiny.

(iii) The light made the ..... make a dark shadow.

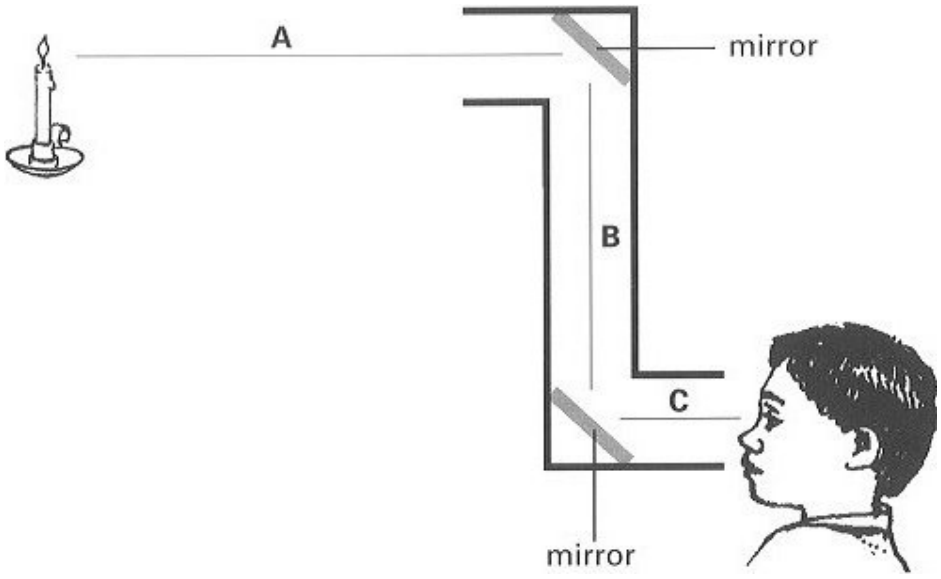
1 mark

(b) Ian has made a periscope with two mirrors and some card.



Periscopes let you see over the top of things.

Ian can see the candle by looking through the periscope.



Show the directions light travels to allow him to see the candle.

Draw **ONE** arrowhead on **EACH** of the lines **A, B** and **C**.

1 mark